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1986-90 Operating Period for the Alaska Pulp Corporation Long-term Sale Area

Final Environmental Impact Statement

Summary



SUMMARY
FINAL ENVIRONMENTAL IMPACT STATEMENT
1986-90 OPERATING PERIOD
FOR THE
ALASKA PULP CORPORATION
LONG-TERM SALE AREA
TONGASS NATIONAL FOREST, CHATHAM AND STIKINE AREAS

NOVEMBER 1986

1986-90 OPERATING PERIOD FOR ALASKA PULP CORPORATION LONG-TERM SALE AREA

Tongass National Forest, Chatham and Stikine Areas

Summary
Final Environmental Impact Statement
November 1986

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Abstract: The action considered in this document is to make available for harvest about 521 million board feet of timber for the 1986-90 operating period to meet long-term timber sale contract obligations with the Alaska Pulp Corporation. Ten alternatives are considered in detail:

Alternative A: No Action alternative defers new timber harvest and road construction for the 1986-90 operating period.

Alternative B: Emphasizes the protection of anadromous fish habitat, deer winter range, other important wildlife habitats, and amenity resource values.

Alternative C: (proposed by Southeast Alaska Conservation Council) Minimizes new logging entry into VCUs with high value wildlife and fisheries habitats including Kadashan; Poison and Fick coves; Deep, Ushk, and Patterson bays; Mud Bay; Broadfinger Creek; north arm of Hoonah Sound; and Lisianski.

Alternative D: (proposed by Alaska Pulp Corporation) Emphasizes short-term economic return to the purchaser by reentering previously roaded areas, enlarging existing units, and using only highlead logging systems.

Alternative E: Combination of alternatives that maintain short-term economic return to the purchaser with an intermediate level of harvest in wildlife habitats and adjacent to Class I fish streams.

Alternative F: Similar to Alternative E, except no harvest is scheduled in Kadashan.

Alternative G: (proposed by the City of Hoonah and Huna Totem and Sealaska Native Corporations) Emphasizes stabilizing the economy of Hoonah by reducing the volume of harvest in the north Chichagof area and optimizing volume transferred over the Long Island terminal transportation facility. In the remainder of the study area, emphasizes short unconnected road systems and more terminal transportation facilities.

Alternative H: (developed in consultation between Alaska Pulp Corporation and the Forest Service) Provides the highest economic returns to the purchaser by proposing new areas for harvest, reentering previously roaded areas, redesigning carryover volume, enlarging clearcut size in higher volume stands, and reducing haul costs by proposing a road connection through VCU 405.

Alternative I: Emphasizes economic return to the purchaser as in Alternative H but reduces the amount of harvest in select areas, for fisheries and wildlife habitat, recreation, and visual resources. Responds to public issues raised on the draft EIS.

Alternative J: (Forest Service's Preferred Alternative): Emphasizes economic returns to the purchaser as in Alternative H but further reduces the amount of harvest in select areas, for fisheries and wildlife habitat, recreation, and visual resources. Responds to public issues raised on the supplemental draft EIS.

CONTENTS

	Page
PURPOSE AND NEED FOR ACTION	
Decision to be Made	S-1
Purpose of the EIS	S-5
Relationship of EIS to other Forest Service	
Planning Levels	S-5
Public Issues Within the Scope of the EIS	S-5
ALTERNATIVES INCLUDING THE PROPOSED ACTION	
Alternatives Eliminated from Detailed Study	S-7
Alternatives Considered in Detail	S-7
Alternative A: No Action	S-8
Alternative B	S-9
Alternative C: Proposed by Southeast Alaska Conservation Council	S-10
Alternative D: Proposed by Alaska Pulp Corporation	S-12
Alternative E	S-13
Alternative F	S-14
Alternative G: Proposed by City of Hoonah and Huna Totem and Sealaska Native Corporations	S-15
Alternative H: Proposed by Alaska Pulp Corporation in consultation with the Forest Service	S-17
Alternative I	S-19
Alternative J: Forest Service's Preferred Alternative	S-21
Comparison of Alternatives to Public Issues	S-23
ANILCA, SECTION 810 SUBSISTENCE MANAGEMENT AND USE EVALUATION AND FINDING	S-34
LONG-TERM AND CUMULATIVE EFFECTS	S-36

MAPS

Map S-1 Vicinity	S-2
Map S-2 Study Area	S-3
Map S-3 Alternative A: No Action	S-8
Map S-4 Alternative B	S-9
Map S-5 Alternative C: Proposed by Southeast Alaska Conservation Council	S-11
Map S-6 Alternative D: Proposed by Alaska Pulp Corporation	S-12
Map S-7 Alternative E	S-13
Map S-8 Alternative F	S-14
Map S-9 Alternative G: Proposed by City of Hoonah and Huna Totem and Sealaska Native Corporations	S-16
Map S-10 Alternative H: Proposed by Alaska Pulp Corporation in consultation with the Forest Service	S-18
Map S-11 Alternative I	S-20
Map S-12 Alternative J: Forest Service's Preferred Alternative	S-22
Map S-13 TTF Sites Investigated on Kuiu Island	S-30
Map S-14 TTF Sites Investigated in Hoonah Sound	S-30

PURPOSE AND NEED FOR ACTION

In 1956, the USDA Forest Service and Alaska Lumber and Pulp, now the Alaska Pulp Corporation (APC) entered into a long-term timber sale contract that terminates in 2011. The long-term timber sale contract requires that every 5 years, the rate of payment be redetermined for the timber that is to be harvested. In conjunction with the rate redetermination, an operating plan is developed that describes the harvest and associated activities that will take place during the upcoming 5-year period. To prepare for the operating plan, an environmental analysis is conducted and an environmental impact statement (EIS) is prepared disclosing the site specific consequences of different alternatives for making available for harvest the volume required under the contract.

On May 17, 1985, the Forest Service filed with the Environmental Protection Agency a draft EIS for the 1986-90 operating period for the APC sale area. The draft EIS disclosed the consequences of six timber management alternatives. When commenting on the draft EIS, APC as well as the City of Hoonah and the Huna Totem and Sealaska Native Corporations submitted new alternatives.

On March 10, 1986 the Forest Service filed a supplemental draft EIS. Development of the new APC proposal (Alternative H) was the subject of ongoing negotiations between APC and the Forest Service under Section 7a of the long-term timber sale contract. The alternative proposed by the City of Hoonah and the Huna Totem and Sealaska Native Corporations is displayed as Alternative G. The supplemental draft EIS disclosed the consequences of three new alternatives.

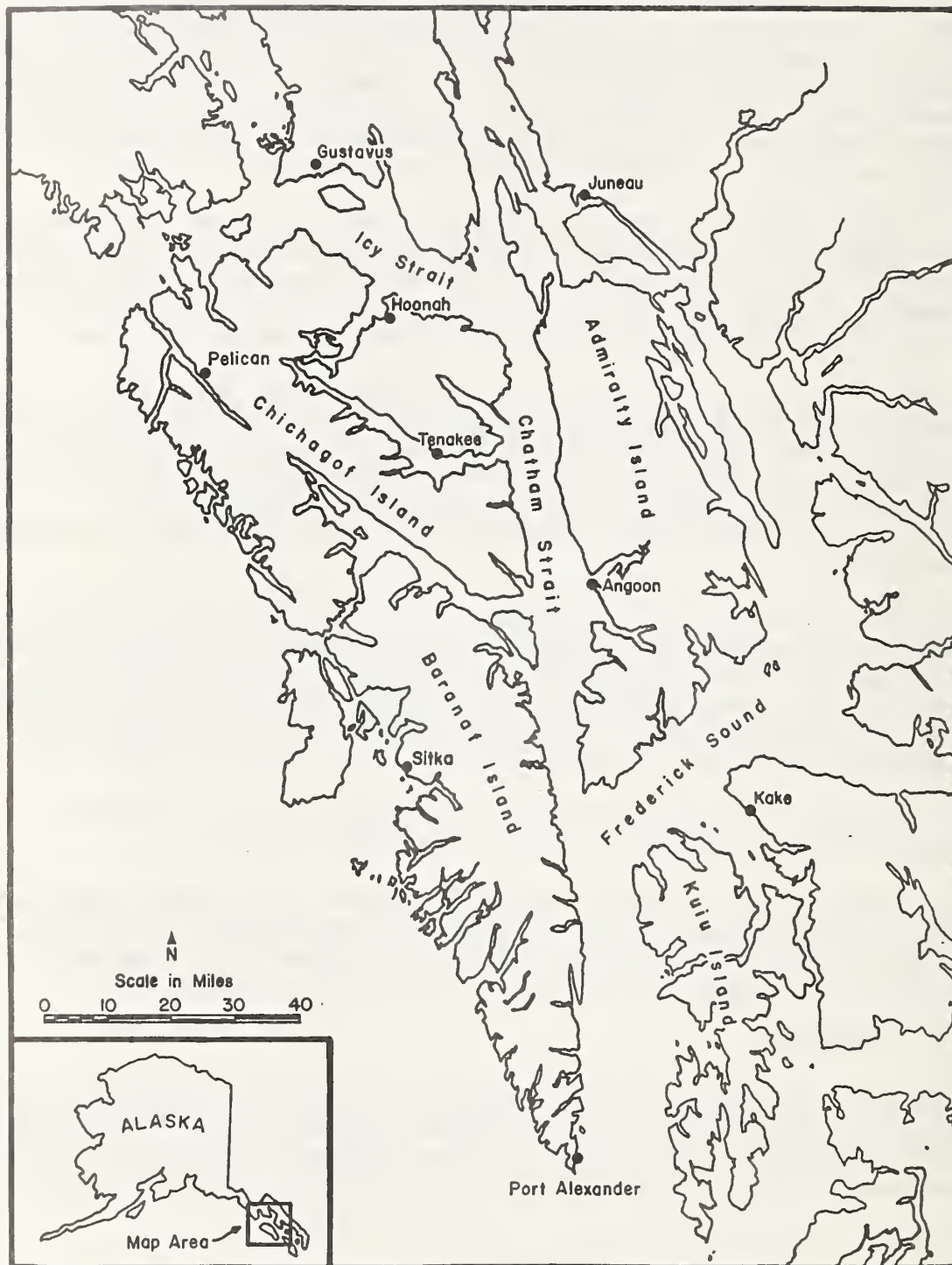
The final EIS is not a decision document. It is a document disclosing the environmental consequences of implementing the proposed action and alternatives to that action that were considered. The planning record containing the detailed information used to develop the final EIS is available for inspection during regular business hours at the Tongass National Forest, Chatham Area Forest Supervisor's office, 204 Siginaka Way, Sitka, Alaska, 99835.

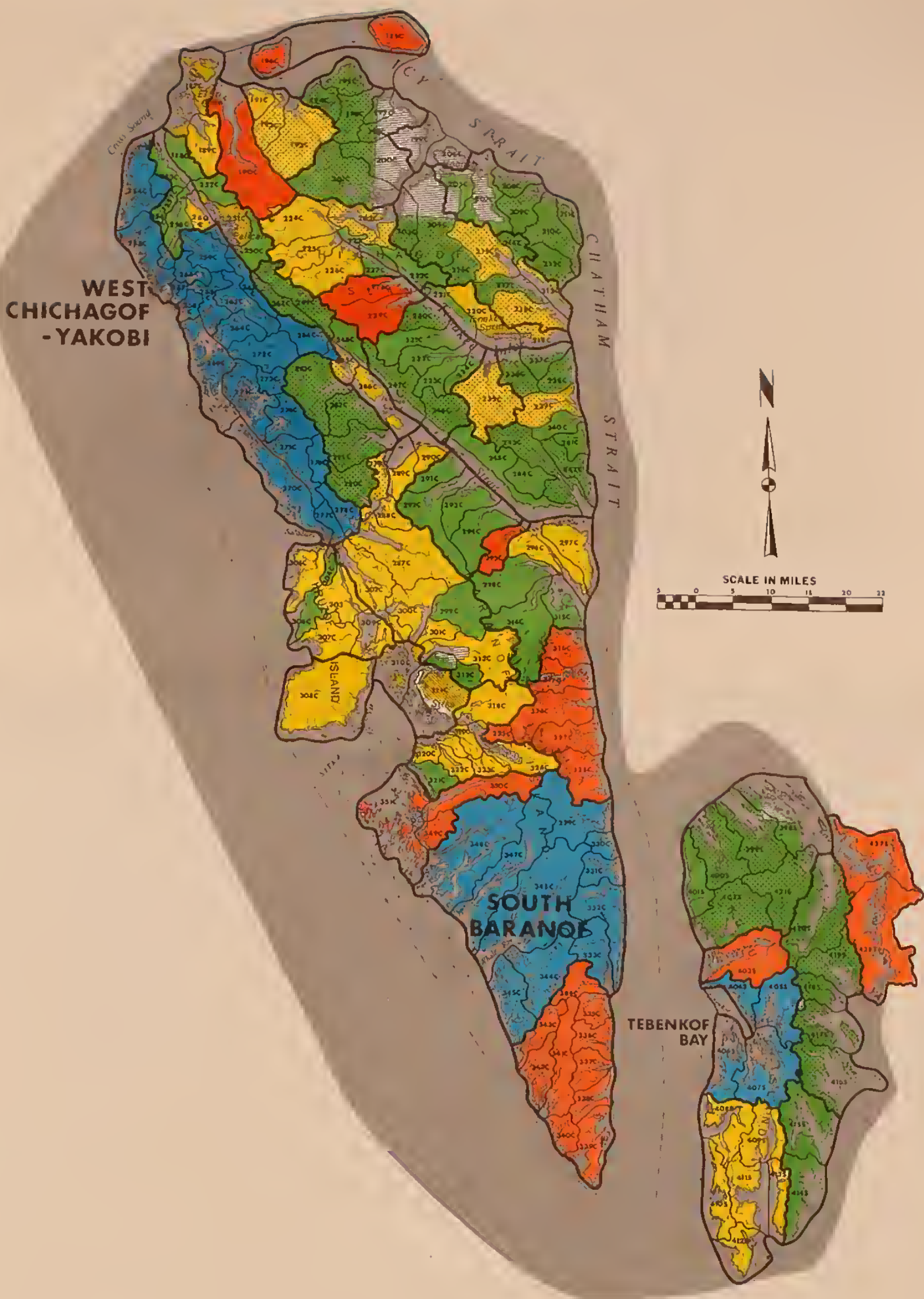
The Record of Decision for the final EIS discloses the Forest Service's proposed action and the rationale for its selection.

The map document for the final EIS that accompanies this summary displays the location of harvest units, roads, and terminal transportation facilities scheduled under each alternative, as well as areas that will be managed to provide old-growth conditions during the 1986-90 operating period.

DECISION TO BE MADE

The responsible official, the Alaska Regional Forester, must decide where to harvest and how to make available for harvest approximately 521 million board feet (MMBF) of timber. The decision includes terminal transportation facility site location, road location, and harvest unit design, location, and size.





PURPOSE OF THE EIS

The purpose of the final EIS is to disclose the consequences of alternate methods of timber management that address:

- How a timber sale operating plan can be developed for portions of the sale area described in the long-term timber sale contract between the Forest Service and APC.
- The objectives and requirements of laws and higher level Forest Service plans, such as the National Forest Management Act, the Alaska Regional Guide, and Tongass Land Management Plan.

RELATIONSHIP OF THE EIS TO OTHER FOREST SERVICE PLANNING LEVELS

Operating plans for the long-term timber sale are only one part of the Forest Service planning framework. Based on information from the Forest Service regions, the Recommended Program for the Forest and Rangeland Renewable Resources Planning Act (RPA) sets direction and assigns targets to the regions for producing goods and services. Each region in turn provides direction and disaggregates its share of the national production levels to its forests. Forest Plans then validate or provide a basis for changing the production levels assigned by the region.

At the local level, activities and projects are used to carry out the direction developed in the Forest Plan. These local projects can use all of the data, evaluation, and other information in the Forest Plan as a basis for local project environmental analyses. This process is called "tiering" to the broader level document.

The Tongass Land Management Plan and the Alaska Regional Guide are incorporated into the final EIS by reference. For the final EIS, incorporating the Tongass Land Management Plan by reference permits concentration on issues specific to this project. Similarly, the Tongass Land Management Plan is tiered to the Alaska Regional Guide, which is tiered to the national RPA program.

The final EIS also tiers to the alternatives and environmental consequences disclosed in the 1981-86 final EIS. Activities approved under the 1981-86 final EIS/Record of Decision that are not yet completed, will continue.

PUBLIC ISSUES WITHIN THE SCOPE OF THE EIS

The following public issues were identified during the public involvement process.

Public Issue 1: What would be the socioeconomic effects of logging and associated development?

Public input reflected concern about the effects of timber harvesting, road construction, and terminal transportation facilities on subsistence activities, community lifestyles, community stability, and social and economic costs. Public concern was also noted about employment in the timber industry, and the social and environmental effects of logging camp locations and linking communities by roads. Some people indicated that both positive and negative effects should be considered, as well as direct and indirect effects.

Public Issue 2: What would be the costs and benefits of implementing the 1986-90 operating plan?

This issue addresses total logging and road construction costs as a measure of financial feasibility. Amenity resource values are not explicitly quantified in the financial analysis. During the development of the final EIS, the need to reduce industry's timber harvesting costs emerged as a facet of this issue.

Public Issue 3: How would fisheries habitat be managed and what effects would timber harvest and related activities have on fisheries habitat?

Public comments reflected concern about how timber harvest and road construction would affect the productivity of fish habitat and what methods may be used to protect fish habitat. Some of the specific concerns related to this issue included the timing of activities near streams, stream protection measures, enhancement opportunities, and streambank integrity.

Public Issue 4: How would wildlife habitat be managed and what effects would timber harvest and related activities have on wildlife habitat?

This issue involves a number of different facets. These facets include concern about a variety of wildlife habitat types and the need to protect habitat for specific species such as Sitka black-tailed deer, Bald Eagles, furbearers, waterfowl, and brown bears. The effectiveness of maintaining and/or enhancing wildlife habitat was questioned by respondents to the draft and supplemental draft EIS. Maintaining old-growth timber for wildlife was a substantial public issue. Specific concern was expressed about the criteria for retention areas, the location and size of the areas, and the permanency of retention.

Public Issue 5: What would be the distribution of harvest, by volume class, for the alternatives considered in the EIS?

Public concern was voiced over the rate of harvesting high volume stands and the economics of harvesting marginal stands (those stands with very low timber volumes).

Public Issue 6: Where would terminal transportation facilities be located and what would be the environmental effects?

Public comments indicated a concern about the location of terminal transportation facilities and the potential environmental effects associated with their construction and operation. This issue encompasses the relationship of terminal transportation facilities to the road systems and the effects of terminal transportation facilities on the marine environment, commercial fisheries, visual quality, recreation, and other environmental factors.

Public Issue 7: How would resource values in high interest areas be maintained?

The areas addressed in the EIS as high interest areas include: Kadashan, VCU 235, for its fisheries and wildlife values; west Hoonah Sound, including VCUs 279, 280, 281, 282, 283, and 285, for their fisheries and wildlife values; Pavlof, VCU 218, for its resident fisheries and wildlife values; Port Camden, VCU 420, for its fisheries and wildlife values; and the Lisianski area, VCUs 249 and 262, for its fisheries, wildlife, and potential wilderness values. Also noted by SEACC as areas of concern for interim protection were VCUs 192, 193, 246, 247, 249, 262, and 421.

Public Issue 8: What would be the effects on visual, recreation, and wilderness resources by implementing the 1986-90 plan?

This issue was identified as a result of the responses received on the draft and supplemental draft EIS. Public comments indicated a concern for the visual resources and aesthetics, recreation and tourism industries, and harvest adjacent to wilderness areas.

ALTERNATIVES INCLUDING THE PROPOSED ACTION

The following alternatives were considered but eliminated from detailed study for a variety of reasons, including: it was inappropriate to consider the alternative in a project level plan; the alternative was currently being considered at a higher level; the alternative was addressed in parts of alternatives that were considered in detail; the alternative was infeasible to implement; or Congress reviewed the matter and did not find it necessary to change management direction to the Tongass National Forest.

- Give top priority to amenity values.
- Reduce the level of harvest on the Tongass National Forest.
- Harvest timber volume classes in direct proportion to their natural occurrence.
- Change Tongass Land Management Plan Land Use Designations to maximize the use of specific resources.
- Add additional areas to the National Wilderness Preservation System.
- Do not schedule any timber harvest in VCUs 416 through 420 during the 1986-90 operating period.
- Use Native Corporation timber to fulfill APC's needs, cancel the long-term timber sale contract, and develop an alternative of 431 MMBF of carryover and 90 MMBF of new timber volume.
- Select a No Action alternative until existing carryover timber is harvested. Once the carryover timber is harvested, select areas from SEACC's Alternative C.
- Use the Tongass Timber Supply Fund to purchase logs from Native Corporations and use the purchased logs to fulfill the Forest Service's obligation under the contract.

ALTERNATIVES CONSIDERED IN DETAIL

The following section presents a summary description of the alternatives considered in detail.

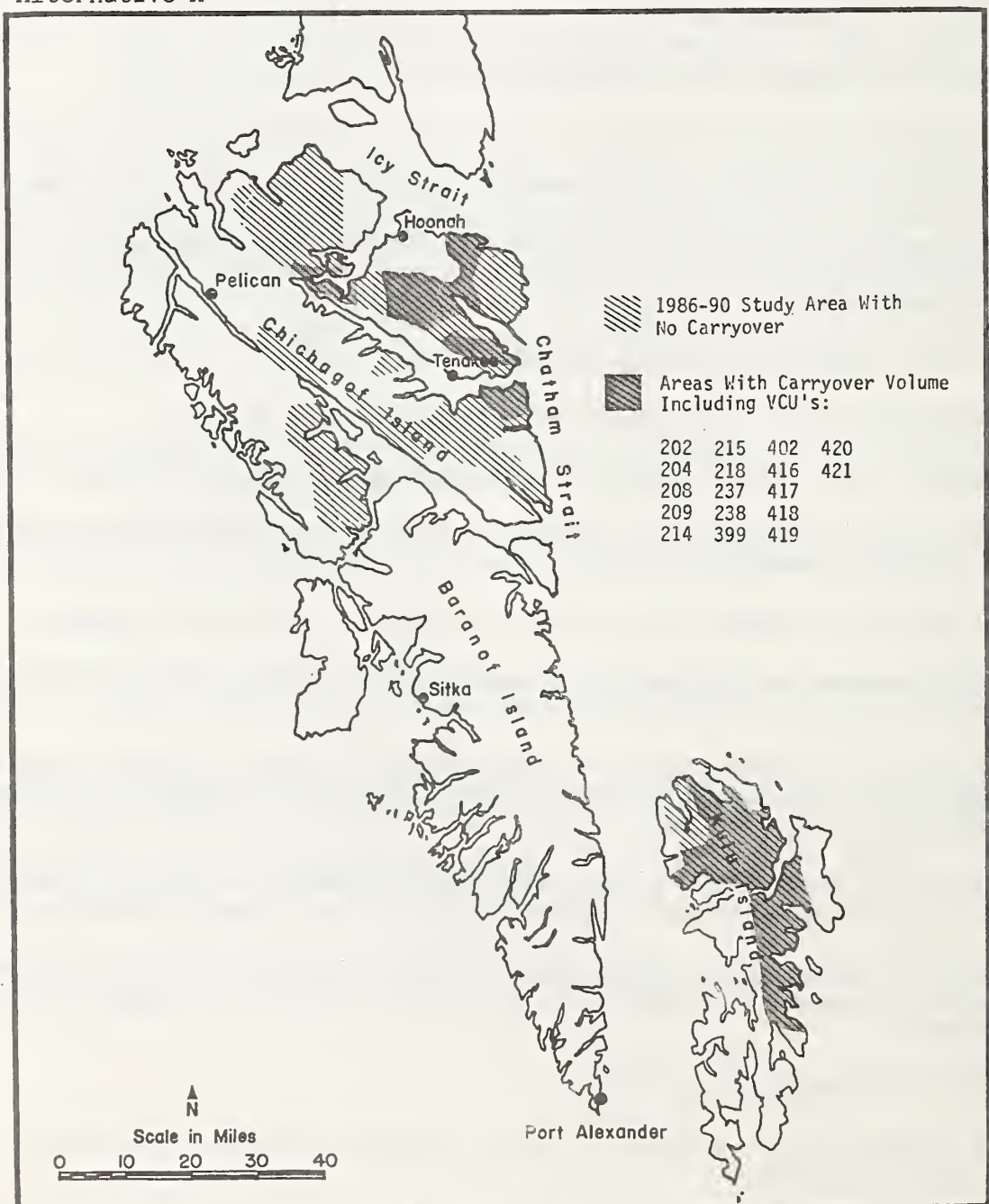
ALTERNATIVE A **NO ACTION**

Alternative A would continue those activities scheduled but not completed during earlier operating plans. This alternative would defer scheduling any additional activity in the study area until after 1990.

Under this alternative, the carryover timber volume would be harvested. There are 52 value comparison units (VCUs, roughly equivalent to watersheds), in the study area; of those, 17 contain a total of 253 MMBF of carryover. To harvest the carryover, five logging camps would continue to be open, and nine terminal transportation facilities would operate including Whitestone, Seal Creek, Trap Bay, and No Name Bay, all of which have been approved but not yet constructed.

Sixty-four respondents supported selecting the No Action alternative. Many respondents stated APC should be required to harvest all carryover timber before new areas are considered for logging.

Map S-3 Alternative A



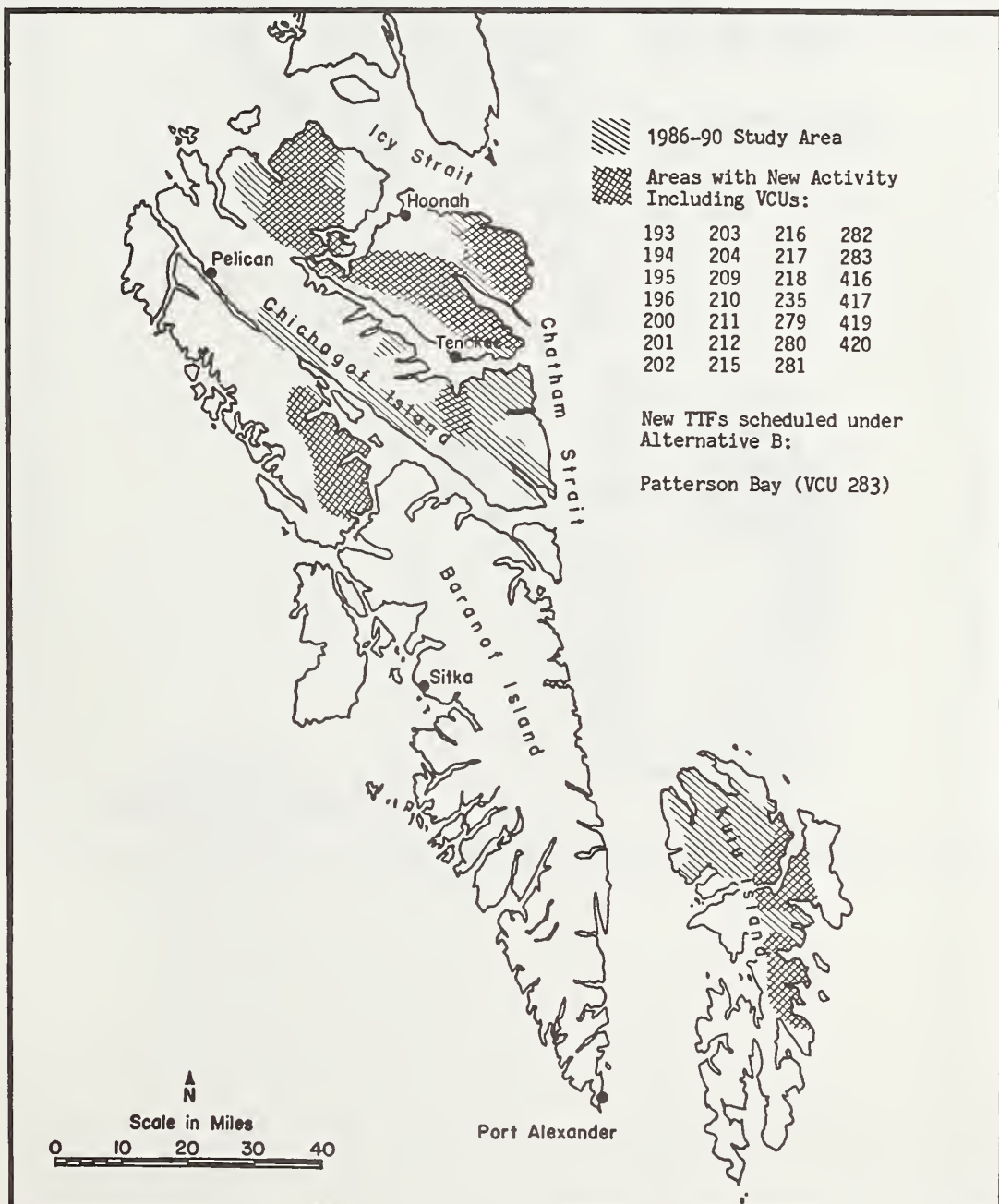
ALTERNATIVE B

Alternative B emphasizes the protection of anadromous fish habitat, deer winter range, other important wildlife habitats, and amenity resource values by scheduling harvest units and road construction in less sensitive areas.

Activities would occur in 27 of the 52 VCUs in the study area. The average clearcut size would be about 54 acres for the 416 cutting units proposed. Nonstandard logging systems would harvest about 45.3 MMBF of the total volume. An average of 2.1 MMBF per mile of road constructed would be scheduled for harvest and 249.8 miles of road construction would be scheduled.

Three respondents addressed and supported Alternative B. One respondent elaborated on the importance of old-growth forests and perceived effects of timber harvesting on fish and wildlife as rationale for support for Alternative B.

Map S-4 Alternative B

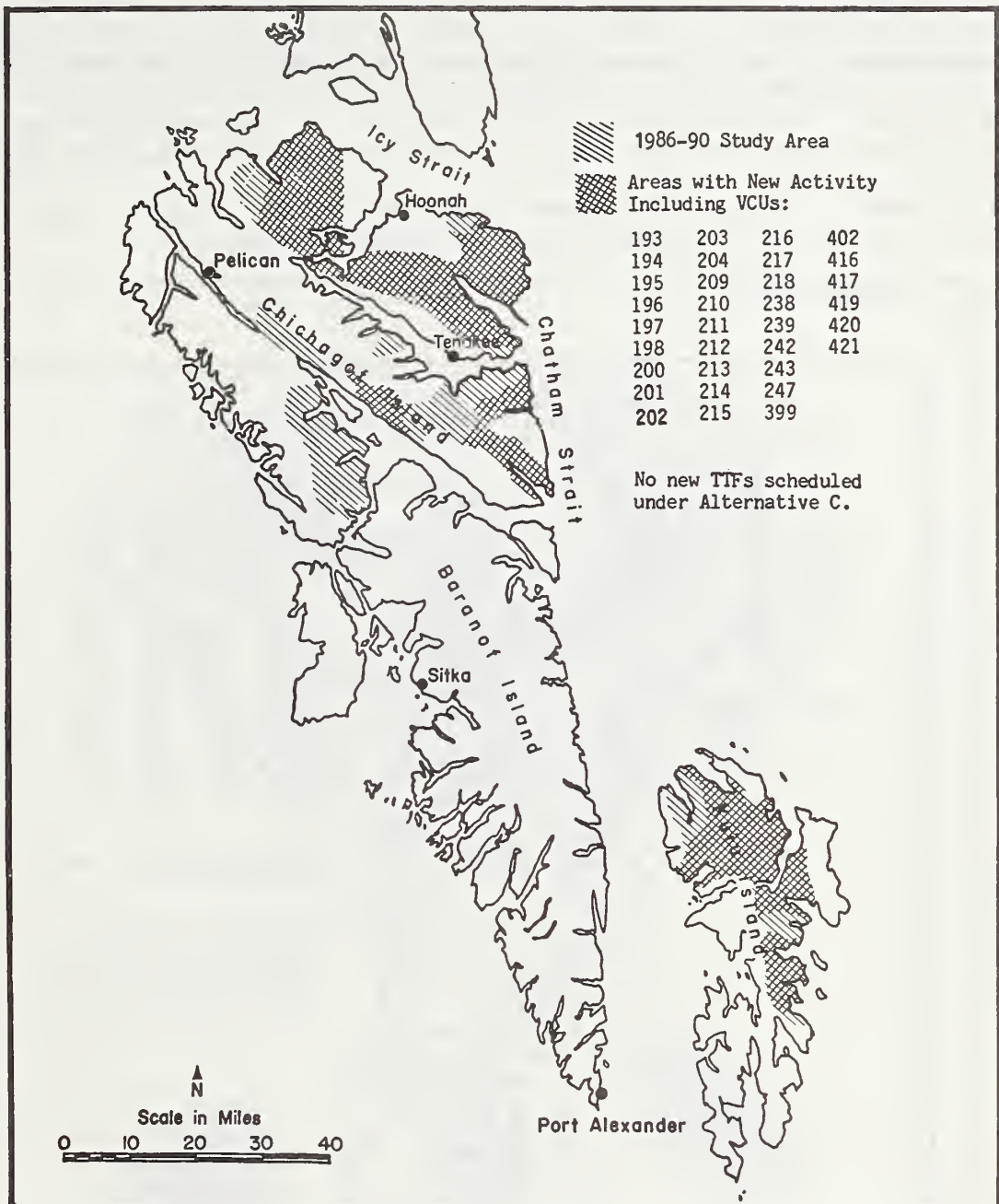


ALTERNATIVE C
PROPOSED BY SOUTHEAST ALASKA CONSERVATION COUNCIL

Alternative C emphasizes avoidance of wildlife and fisheries habitats by deferral of complete VCUs. Alternative C would not schedule activity in Kadashan, Poison and Fick coves, Deep, Ushk, and Patterson bays, and VCU 285 as requested by Southeast Alaska Conservation Council (SEACC) and the Sitka and Petersburg Conservation Societies. In addition, Alternative C proposes no activity in VCUs 192, 193, 246, 249, and 262; identified by SEACC as areas of concern for interim protection.

Activities would disperse effects in 32 of the 52 VCUs in the study area. The average clearcut size would be about 53 acres (if unharvested areas from previous APC 5-year periods are included, the average unit size would be 56 acres) for the 399 cutting units. Nonstandard logging systems would harvest 44.6 MMBF of the total volume. An average of 2.4 MMBF per mile of road constructed would be scheduled for harvest and 211.7 miles of road construction would be scheduled.

Eighty-seven respondents indicated either support for Alternative C, advocated using Alternative C if additional timber is to be supplied to APC, or indicated support for the SEACC position.



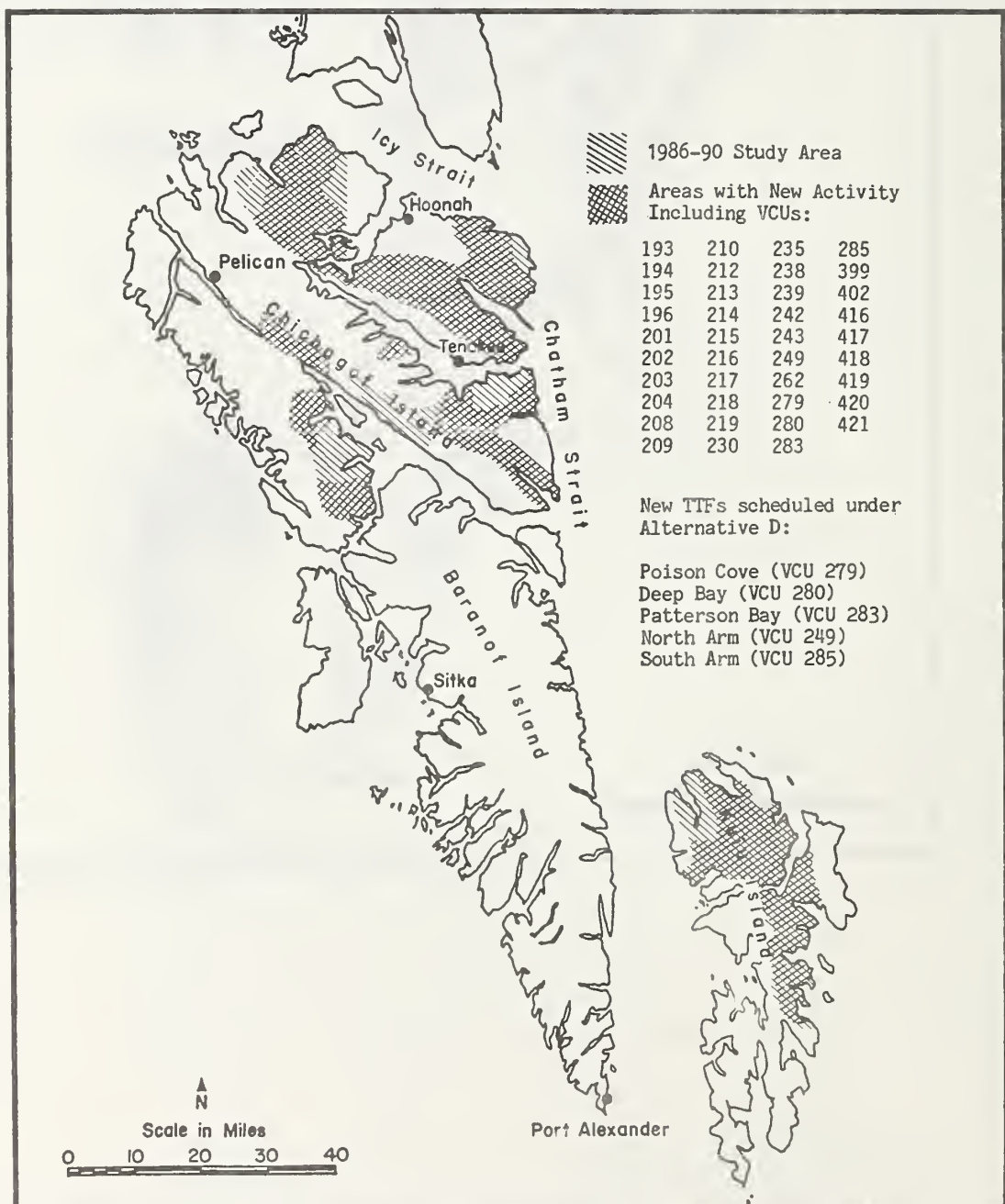
ALTERNATIVE D PROPOSED BY ALASKA PULP CORPORATION

Alternative D is based on a harvest proposal by APC that was developed with the Forest Service into Alternative D. It emphasizes economic return to the purchaser by reentering previously roaded areas, enlarging existing harvest units, and using only highlead logging systems.

Activities would occur in 38 of the 52 VCUs in the study area. The average clearcut size would be 55 acres (if unharvested areas from previous APC 5-year periods are included, the average unit size would be 78 acres) for the 410 cutting units proposed. An average of 2.9 MMBF per mile of road constructed would be scheduled for harvest and 194.4 miles of road construction would be scheduled.

Six respondents addressed and supported Alternative D; increased timber harvest economics was the main rationale cited by these respondents.

Map S-6 Alternative D

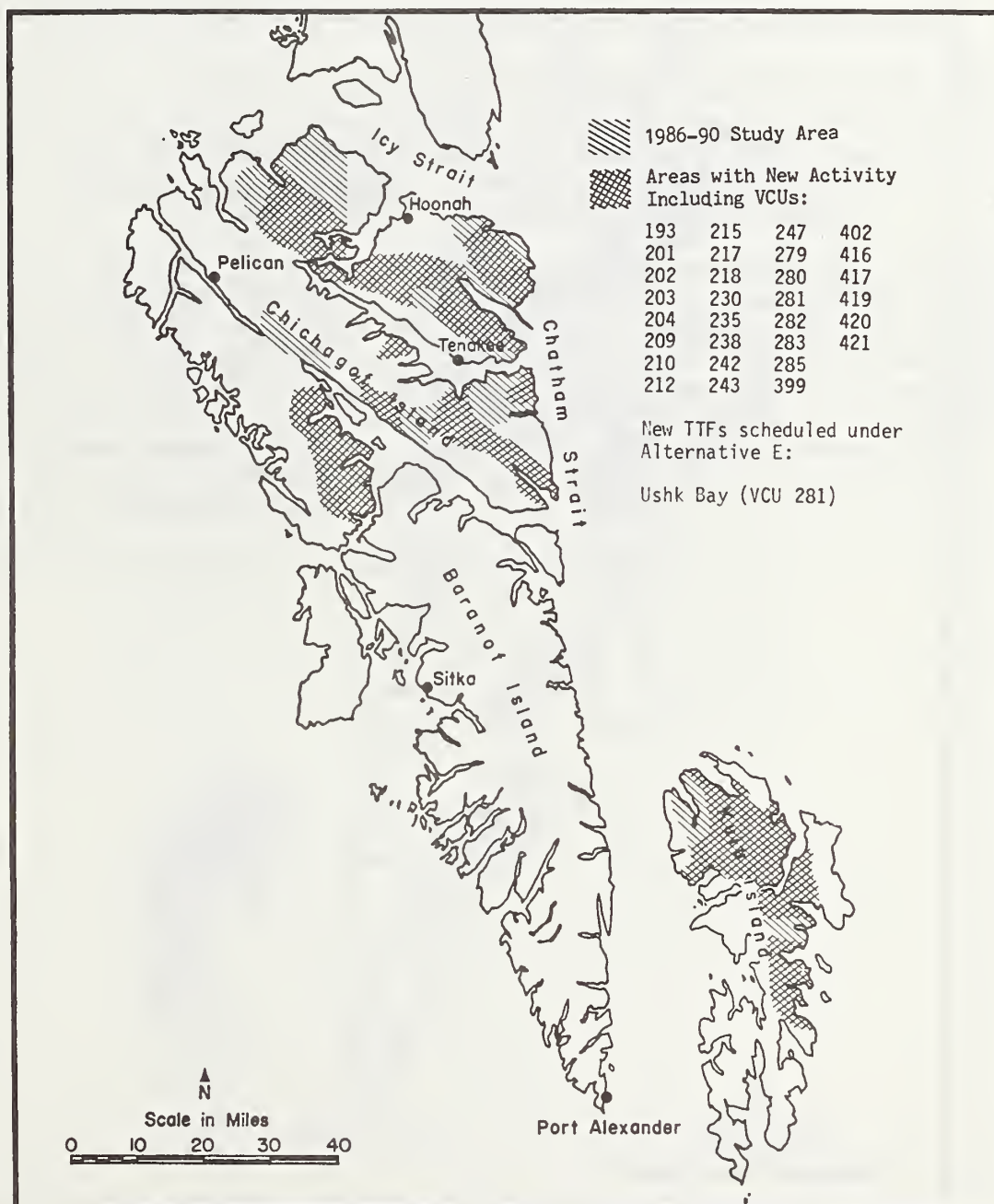


ALTERNATIVE E

Alternative E emphasizes economic return to the purchaser and proposes timber harvest in Kadashan (VCU 235).

Activities would occur in 30 of the 52 VCUs in the study area. The average clearcut size would be 59 acres (if unharvested areas from previous APC 5-year periods are included, the average unit size would be 67 acres) for the 381 cutting units proposed. Nonstandard logging systems would harvest 42.9 MMBF of the total volume. An average of 2.7 MMBF per mile of road constructed would be scheduled for harvest, and 194.3 miles of road construction would be scheduled.

Map S-7 Alternative E



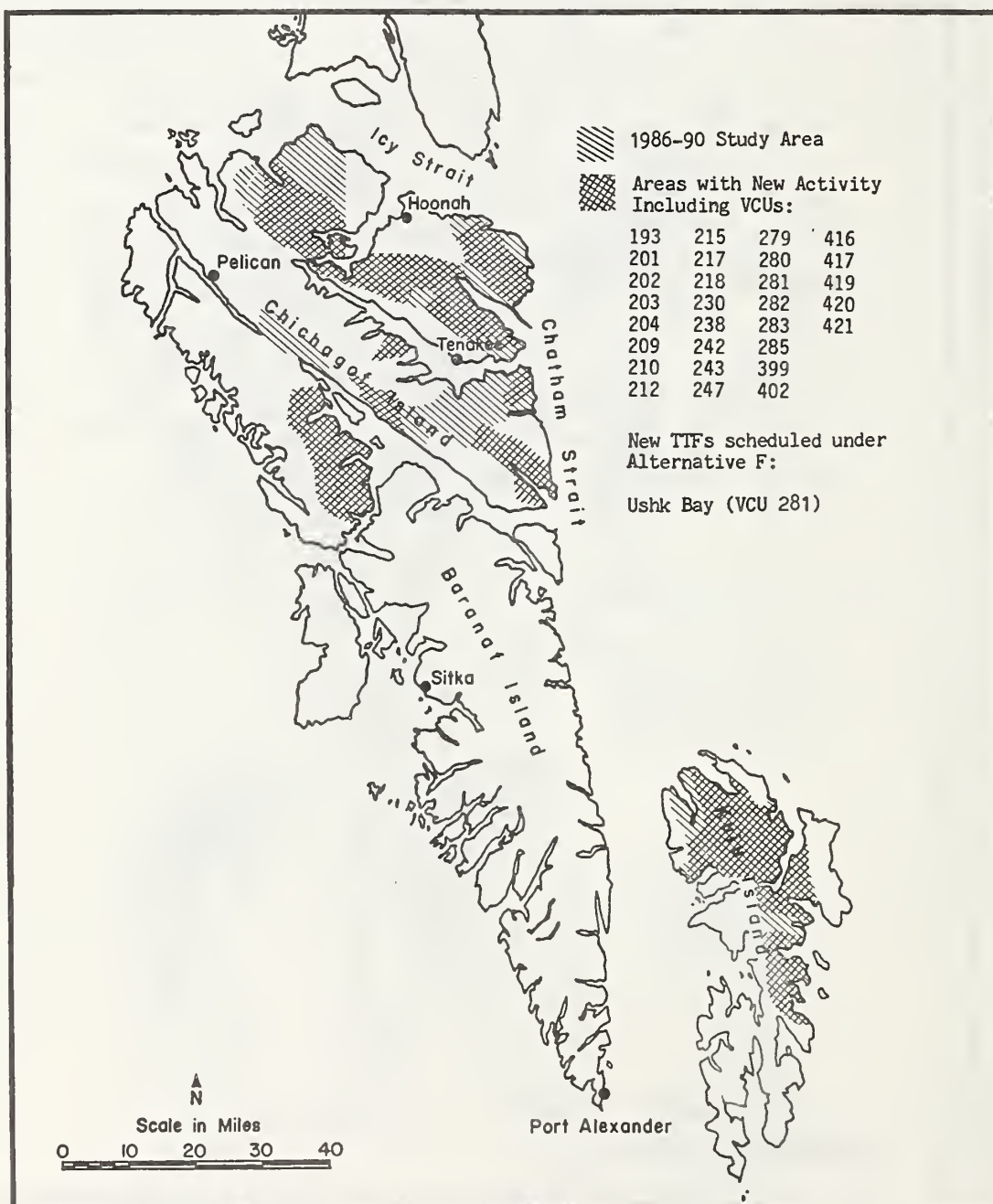
ALTERNATIVE F

The emphasis of Alternative F is very similar to Alternative E. However, Alternative F does not schedule timber harvest in Kadashan (VCU 235).

Activities would occur in 29 of the 52 VCUs in the study area. The average clearcut size would be 61 acres (if unharvested areas from previous APC 5-year periods are included, the average unit size would be 65 acres) for the 359 cutting units proposed. Nonstandard logging systems would harvest 29 MMBF of the total volume. An average of 3.0 MMBF per mile of road constructed would be scheduled for harvest and 177.0 miles of road construction would be scheduled.

One response was received in support of Alternative F.

Map S-8 Alternative F



**ALTERNATIVE G
PROPOSED BY THE CITY OF HOONAH AND THE HUNA TOTEM
AND SEALASKA NATIVE CORPORATIONS**

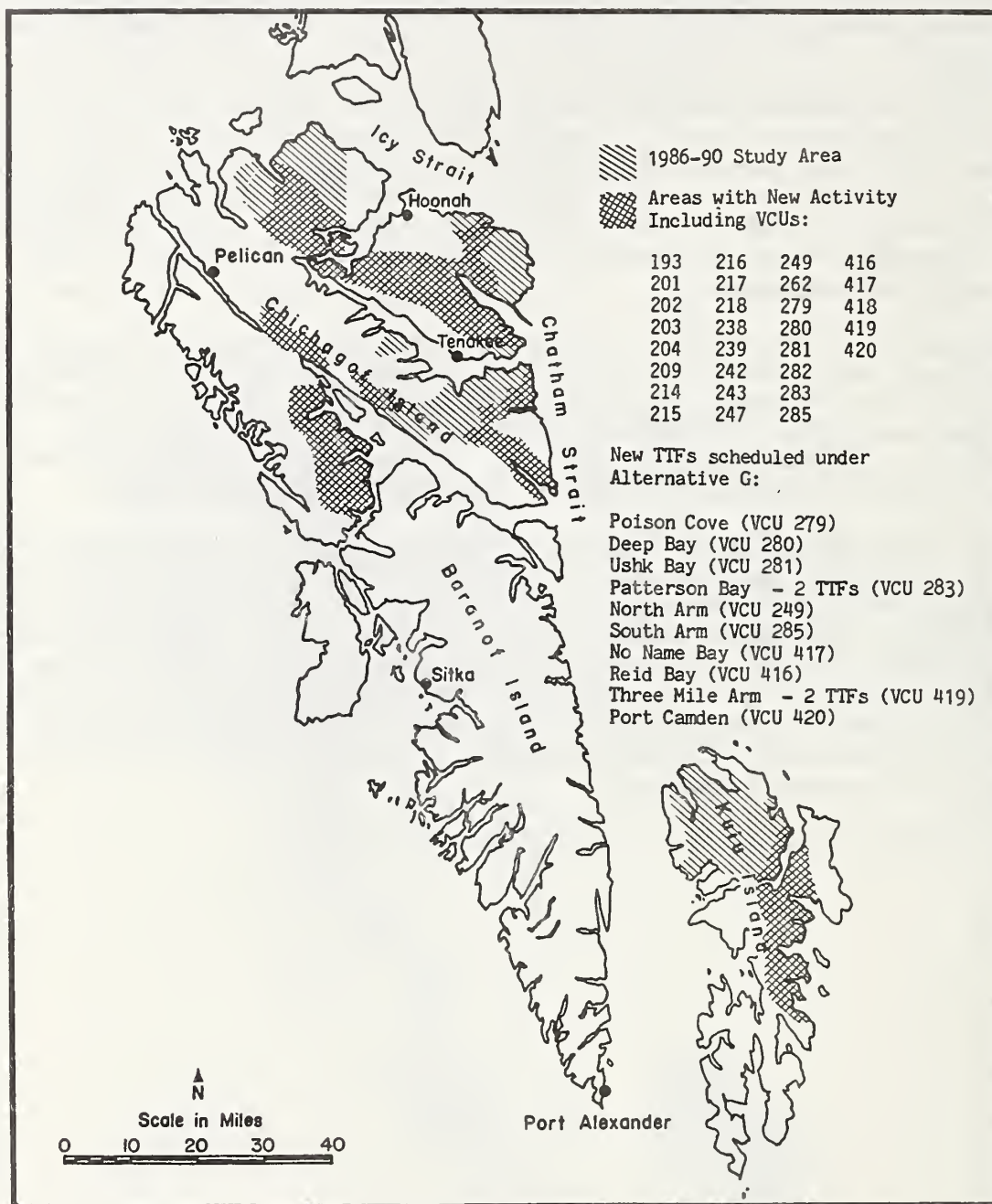
This alternative was proposed by the City of Hoonah and Huna Totem and Sealaska Native Corporations and supported by Whitestone Logging Company. Alternative G limits the volume harvested on north Chichagof to 173.6 MMBF and schedules 72.1 MMBF to be placed in saltwater at the Long Island terminal transportation facility.

Activities would occur in 29 of the 52 VCUs in the study area. The average clearcut size would be about 59 acres (if contiguous unharvested areas from previous APC 5-year periods are included, the average unit size would be 65 acres) for the 352 cutting units proposed. Nonstandard logging systems would harvest about 24.1 MMBF of the total volume. An average of 2.9 MMBF per mile of road constructed would be scheduled for harvest and 170.5 miles of road construction are scheduled.

Implementation of Alternative G would develop a road connection between the Indian River road system near the City of Tenakee Springs and the road system out of the City of Hoonah. Many residents of Tenakee Springs are opposed to this road connection; residents of Hoonah generally support the road connection. Alternative G also requires completion of the Kadashan road, currently under litigation, to remove timber from VCUs 242 and 243.

Implementation of Alternative G would eliminate the need to construct previously approved terminal transportation facilities at Whitestone Harbor (VCU 209) and Seal Creek (VCU 213). The timber that would have been hauled to those terminal transportation facilities would be hauled instead to the Long Island terminal transportation facility near Hoonah. Timber volume from the Seal Creek Area (VCU 213), would require a road connection to an existing road in the Spasski Creek drainage (VCU 207). VCU 207 is outside the study area; therefore, a decision to construct this road connection would have to be covered by a separate environmental analysis.

Five respondents addressed and supported Alternative G.



ALTERNATIVE H
PROPOSED BY ALASKA PULP CORPORATION IN CONSULTATION WITH THE FOREST SERVICE

Alternative H is based on a APC request for consideration of a new alternative that reflects the current depressed market condition and public comments received on the draft EIS. APC and the Forest Service agreed to review and modify the APC proposal under the provisions of the long-term timber sale contract, Section 7a. Alternative H emphasizes economic return to the purchaser by proposing new areas for harvest, reentering previously roaded areas, redesigning carryover units, enlarging harvest unit size, and using only highlead logging systems.

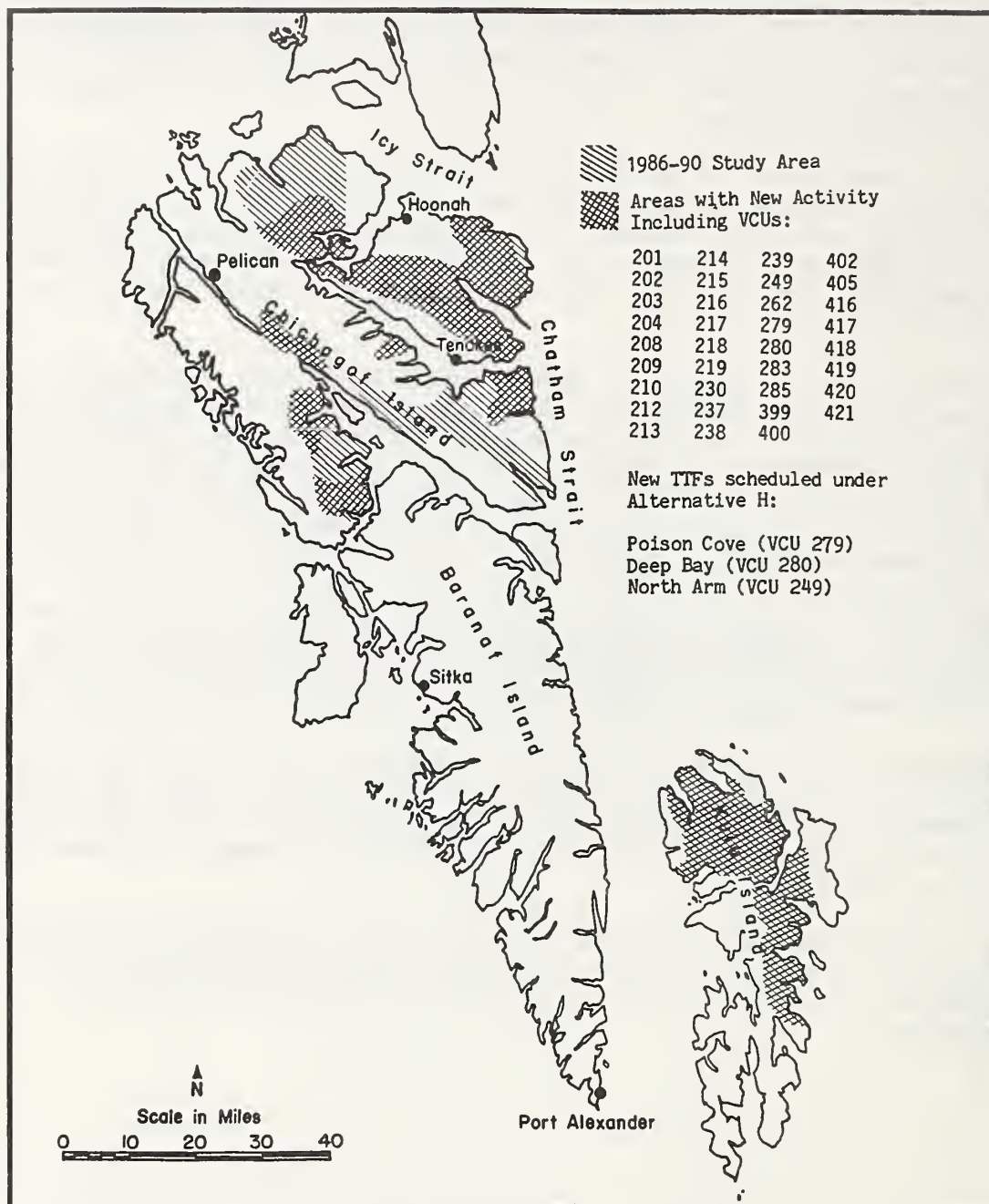
Activities would occur in 34 of the 52 VCUs in the study area. The average clearcut size would be 68 acres (if contiguous unharvested areas from previous APC 5-year periods are included, the average unit size would be 79 acres) for the 289 cutting units proposed. An average of 3.2 MMBF per mile of road constructed would be scheduled for harvest and 164.3 miles of road construction are scheduled.

Implementation of Alternative H would eliminate the need to construct previous approved terminal transportation facilities (TTFs) at Seal Creek (VCU 213) and Trap Bay (VCU 237). The timber from the Seal Creek drainage would be hauled to the Kennel Creek TTF along a road proposed along the north side of Freshwater Bay (VCU 215) to the existing road system near Kennel Creek. The timber from the Trap Bay drainage would be hauled to the Corner Bay TTF along a road proposed near Kook Lake to the existing road system out of Corner Bay.

Implementation of Alternative H would develop a road connection between the Indian River road system near the City of Tenakee Springs and the road system out of the City of Hoonah. Many residents of Tenakee Springs are opposed to this road connection; residents of Hoonah generally support the road connection.

Implementation of Alternative H would eliminate a portion of the previously approved road near Salt Lagoon (VCU 418) and construct a road, as proposed by APC, through the Alecks Lake area (VCU 405) which was released by Congress from wilderness recommendation. Units are redesigned to leave a forested buffer along the Salt Lagoon.

Forty-three respondents supported Alternative H; 31 were Sitka residents. Both the Sitka and Wrangell chambers of commerce voiced strong support for Alternative H. The Alaska Pulp Corporation also gave strong support for Alternative H.



ALTERNATIVE I

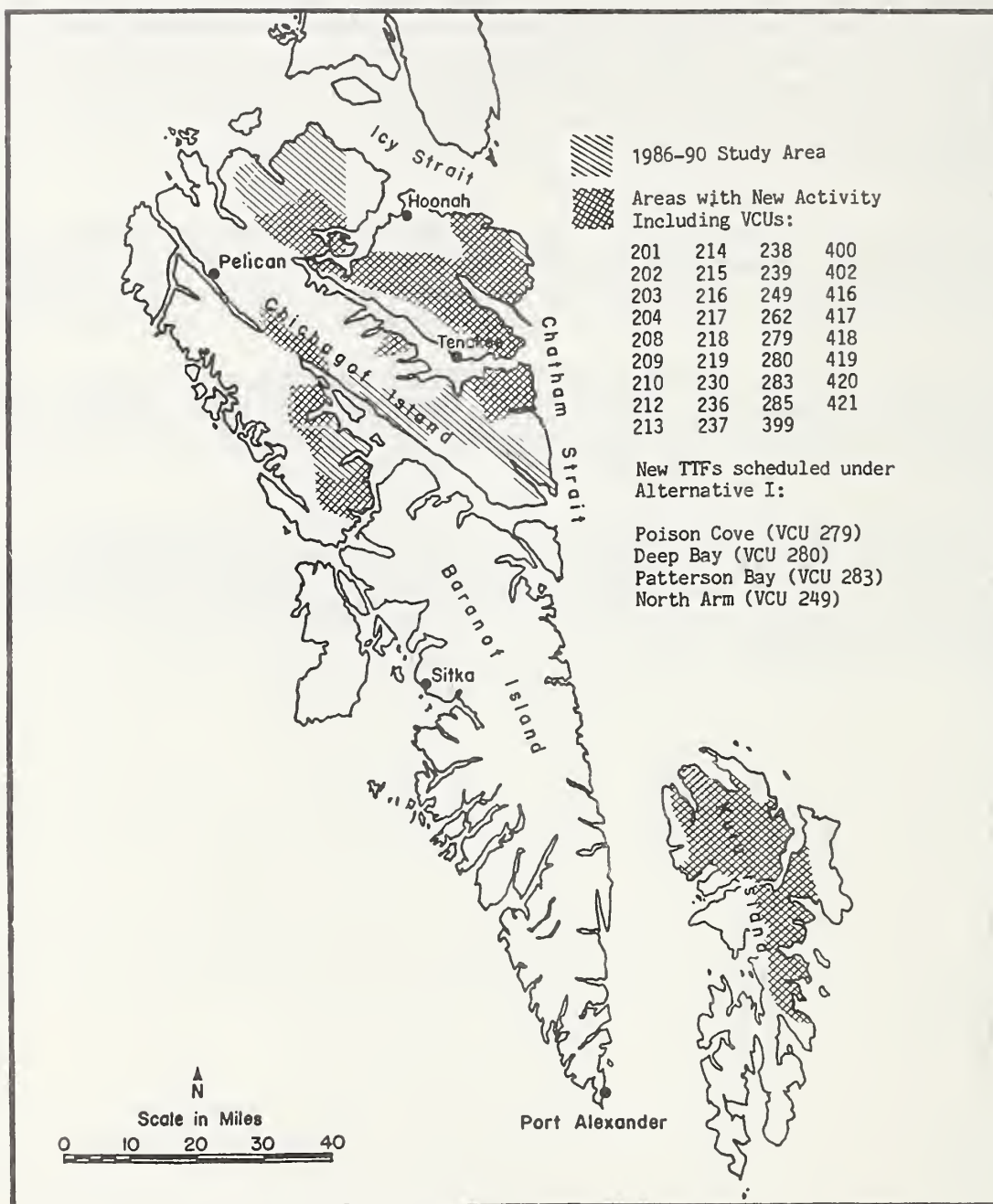
Alternative I is very similar to Alternative H. It slightly reduces the economic return to the purchaser while reducing adverse effects of harvest on wildlife, fisheries, visual, and recreation resources.

Activities would occur in 35 of the 52 VCUs in the study area. The average clearcut size would be 65 acres (if contiguous unharvested areas from previous Alaska Pulp Corporation 5-year periods are included, the average unit size would be 72 acres) for the 304 cutting units proposed. Volume would be harvested using only highlead logging systems. An average of 2.9 MMBF per mile of road constructed would be scheduled for harvest and 176.4 miles of road construction are scheduled.

Implementation of Alternative I would develop a road connection between the Indian River road system near the City of Tenakee Springs and the road system out of the City of Hoonah. Many residents of Tenakee Springs are opposed to this road connection; residents of Hoonah generally support the road connection.

Implementation of Alternative I would eliminate the need to construct previous approved TTFs at Seal Creek (VCU 213) and Trap Bay (VCU 237). Refer to the description of Alternative H for a description of where timber harvested in those areas would be transported.

Ten respondents supported Alternative I; generally for economic reasons. The State of Alaska, gave support for Alternative I, with some suggested modifications. The State of Alaska stated that Alternative I responded to sensitive environmental and public use concerns, while improving the short-term economics of the timber sale.



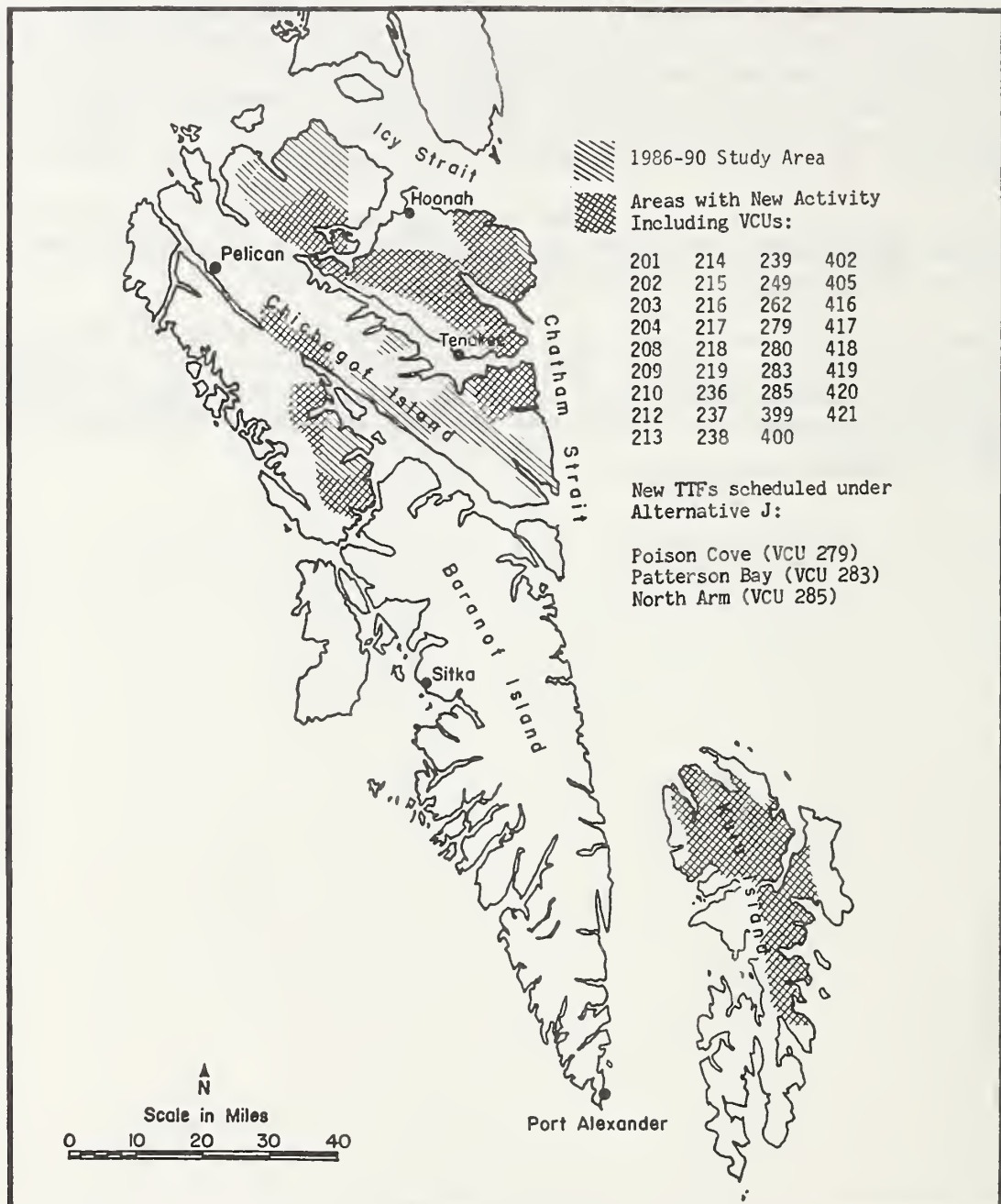
**ALTERNATIVE J
FOREST SERVICE'S PREFERRED ALTERNATIVE**

Alternative J is very similar to alternatives H and I. It slightly reduces the economic return to the purchaser while reducing adverse effects of harvest on wildlife, fisheries, visual, and recreation resources.

Activities would occur in 34 of the 52 VCUs in the study area. The average clearcut size would be 66 acres (if contiguous unharvested areas from previous 5-year operating periods are included, the average unit size would be 74 acres) for the 301 cutting units proposed. Volume would be harvested using highlead logging systems. An average of 3.0 MMBF per mile of road constructed would be scheduled for harvest and 171.8 miles of road construction are scheduled.

Under Alternative J, the timber from the Trap Bay drainage would be hauled to the Corner Bay terminal transportation facility by way of a road proposed near Kook Lake to the existing road system out of Corner Bay.

Implementation of Alternative J would eliminate a portion of the previously approved road near Salt Lagoon (VCU 418) and construct a road, as proposed by APC, through the Alecks Lake area (VCU 405) which was released by Congress from wilderness recommendation. Units are designed to leave a forested buffer along the Salt Lagoon.



COMPARISON OF THE ALTERNATIVES

This section provides a comparison of how the public issues would be affected by each of the alternatives.

PUBLIC ISSUE 1: What would be the socioeconomic effects of logging and associated development?

The following table compares the economic effects of the alternatives on population, employment, and income^a. Alternatives B through J make available approximately 521 MMBF each and would, therefore, have similar effects. Two scenarios for Alternative A are displayed. Scenario 1 displays the economic effects of the closure of one sawmill and one pulpmill in Southeast Alaska. This scenario assumes that the No Action alternative would disrupt financing, and closures would result. Scenario 2 displays the effect to the economy of not harvesting and processing 521 MMBF in Southeast Alaska.

Table S-1 Economic Effects - Jobs and Wages Comparison

Output or Effect to be Measured	Alternative A Closure Scenario 1	Alternative A Loss of 521 MMBF Scenario 2	Alternatives B through J
Number of jobs ^b lost/maintained			
- Sawmill	305 jobs lost	305 jobs lost	Existing sawmill generated employment maintained.
- Pulpmill	565 jobs lost	245 jobs lost	Existing pulpmill generated employment maintained.
- Total	870 jobs lost	550 jobs lost	Existing sawmill/pulpmill generated employment maintained.
Wages ^b lost/maintained			
- Sawmill	12.302 MM \$ lost	12.302 MM \$ lost	Existing wages maintained.
- Pulpmill	25.584 MM \$ lost	11.079 MM \$ lost	Existing wages maintained.
- Total	37.886 MM \$ lost	23.381 MM \$ lost	Existing wages maintained.
Business in community lost/maintained			
- Sawmill	51.386 MM \$ lost	51.386 MM \$ lost	Existing business value maintained.
- Pulpmill	116.976 MM \$ lost	50.687 MM \$ lost	Existing business value maintained.
- Total	168.362 MM \$ lost	102.073 MM \$ lost	Existing business value maintained.
Population ^b lost/maintained			
- Sawmill	561 population loss	561 population loss	Existing populations maintained.
- Pulpmill	1040 population loss	451 population loss	Existing populations maintained.
- Total	1601 population loss	1012 population loss	Existing populations maintained.

^aThe economic effects were based on market conditions for lumber and wood products in Southeast Alaska that are unchanged from the present and assume that the economic role of industry in the economy in Southeast Alaska will remain the same. Projected population decreases assume 80 percent of the affected workers would leave the local area and that for each worker losing a job, the population would decrease by a factor of 2.3.

^bThe number of jobs, etc. displayed here represents sawmill, pulpmill, and loggers as well as other areas of the economy which are generally called induced and indirect employment, wages, etc.

The following table compares subsistence resource use and lifestyle effects by alternative, by community.

Table S-2 Subsistence Effects

	Alternatives										Pref. Alt. J
	A	B	C	D	E	F	G	H	I		
Tenakee Springs Use Areas:											
VCU 202, 210, 212-219, 230, 235-239											
Acres of Harvest	0	4665	6781	9178	6337	5542	3726	6282	6624	6428	
Volume of Harvest (MMBF)	0	101.4	148.6	221.6	143.0	121.9	85.4	150.1	156.7	153.2	
Miles of Road	0	52.5	61.3	71.3	59.3	45.5	24.7	50.0	60.1	52.1	
Percent expected subsistence deer harvest provided after severe winter, by remaining habitat carrying capacity (Hunt Area 36; E. Chichagof)	598	594	576	548	582	580	586	572	578	578	
Angoon Use Areas:											
VCU 210-213, 217-219, 237-239, 242, 243, 246, 279, 281											
Acres of Harvest	0	4252	5212	6433	6143	6532	3705	4929	5203	5203	
Volume of Harvest (MMBF)	0	90.0	114.2	150.9	135.7	144.7	86.2	116.3	122.7	122.7	
Miles of Road	0	52.3	47.5	57.8	52.8	57.8	26.3	37.8	47.0	47.5	
Percent expected subsistence deer harvest provided after severe winter, by remaining habitat carrying capacity (Hunt Area 36; E. Chichagof)	598	594	576	548	582	580	586	572	578	578	
Port Protection and Point Baker Use Areas: VCU 416-419											
Acres of Harvest	0	3145	3772	3600	3170	3170	3634	5861	5837	5861	
Volume of Harvest (MMBF)	0	84.5	100.0	95.5	86.1	86.1	95.8	167.7	165.6	167.7	
Miles of Road	0	29.5	37.5	23.5	24.0	24.0	29.7	34.2	36.8	34.2	
Percent expected subsistence deer harvest provided after severe winter, by remaining habitat carrying capacity (east Kuiu)	415	409	392	365	402	402	394	388	385	388	
Sitka Use Areas:											
VCU 246, 247, 279-282											
Acres of Harvest	0	4067	195	1030	4552	4552	4145	785	897	1022	
Volume of Harvest (MMBF)	0	88.3	3.5	21.5	98.8	98.8	87.9	16.6	20.0	21.9	
Miles of Road	0	42.8	1.5	11.1	42.3	42.3	36.0	8.4	11.0	15.4	
Percent expected subsistence deer harvest provided after severe winter, by remaining habitat carrying capacity (Hunt Area 33; S. Chichagof)	346	336	344	342	336	334	334	340	342	342	

(continued)

(continued)

Table S-2 continued

	Alternatives										Pref. Alt. J
	A	B	C	D	E	F	G	H	I	J	
Hoonah Use Areas: (VCU 192 through 218)											
Acres of harvest	0	11,080	15,506	11,876	8,562	9,367	7,452	7,183	7,160	7,133	
Volume of harvest (MMBF)	0	250.8	359.5	291.7	193.7	213.7	173.6	174.8	174.2	174.1	
Miles of road	0	135.0	160.9	115.4	70.7	76.9	56.1	61.7	68.5	61.4	
Percent expected subsistence deer harvest provided after severe winter, by remaining habitat carrying capacity (Hunt Area 35; N. Chichagof)	164	158	154	152	158	156	156	160	160	160	
Kake Use Areas: (VCUs 399, 400, 420 and 421)											
Acres of harvest	0	1,507	872	564	1,721	1,721	1,376	1,750	1,750	1,750	
Volume of harvest (MMBF)	0	45.9	28.2	16.9	54.9	54.9	43.1	57.8	57.8	57.8	
Miles of road	0	16.5	9.3	.5	14.0	14.0	13.5	14.1	14.1	14.1	
Percent expected subsistence deer deer harvest provided after severe winter, by remaining habitat carrying capacity (north Kuiu)	645	634	631	635	631	631	636	626	626	626	
Pelican Use Areas: (VCUs 249 and 262)											
Acres of harvest	0	0	0	1,204	0	0	1,204	1,065	780	780	
Volume of harvest (MMBF)	0	0	0	28.0	0	0	28.2	26.2	19.2	19.2	
Miles of road	0	0	0	13.1	0	0	13.1	13.1	11.3	11.3	
Percent expected subsistence deer harvest provided after severe winter, by remaining habitat carrying capacity (Hunt Area 34)	No effect on subsistence deer harvest is anticipated under any alternative.										

PUBLIC ISSUE 2: What would be the costs and benefits of implementing the 1986-90 operating plan?

Table S-3 Costs and Benefits Comparison

Table S-3 Costs and Benefits Comparison										
Output or Effect to be Measured	A	Alternatives								Pref. Alt. J
		B	C	D	E	F	G	H	I	
Total logging and road construction costs, \$/MBF	N/A	264.59	248.27	217.41	236.34	262.56	256.78	208.19	212.18	210.53
		Figures are maximum costs to the purchaser. The Forest Service may assume all or a portion of the road construction costs thereby reducing the cost to the purchaser.								
Benefits	N/A	All action alternatives would result in the regeneration of overmature timber stands thereby improving timber productivity on a sustained yield basis. A primary transportation system would be constructed in each action Alternative resulting in improved access.								
		Approximately \$0.8 million would be generated from timber receipts under each action alternative if sold at base rates. The State of Alaska would receive 25% of timber receipts and road credits in lieu of taxes. Nontimber benefits are incorporated into each alternative as resource objectives and constraints.								
Investment in Millions of Dollars	N/A	51.8	42.0	26.4	36.7	49.9	46.8	18.8	21.1	20.1
Timber harvested per mile of road constructed MMBF	0	2.1	2.4	2.9	2.7	3.0	2.9	3.2	2.9	3.0
Avg. unit size Acres	0	54	53	55	59	61	59	68	65	66

^aDisplays the relative investment or market improvement necessary for each alternative to produce zero profit and risk.

PUBLIC ISSUE 3: How would fisheries habitat be managed and what effects would timber harvest and related activities have on fisheries habitat?

Table S-4 Effects on Fisheries Habitat

Output or Effect to be Measured	Alternatives										Pref. Alt.
	A	B	C	D	E	F	G	H	I	J	
Anticipated new stream crossings by FHMU											
Class A FHMU	0	143	94	171	126	126	140	107	107	101	
Class B FHMU	0	32	14	26	35	33	37	23	20	20	
Class C FHMU	0	180	171	113	122	112	113	69	80	81	
Percent stream crossings that would require benefit/cost analysis	0	28	18	25	29	30	27	20	24	25	
Number of harvest units containing FHMU											
Class A FHMU	0	96	102	149	117	114	115	125	120	115	
Class B FHMU	0	20	10	21	27	23	25	11	13	13	
Class C FHMU	0	148	139	148	139	141	148	113	118	128	
Miles of harvest unit in FHMU; all FHMUs											
1 side miles	0	38.3	36.7	54.9	47.7	44.5	47.3	41.9	40.0	39.0	
2 side miles	0	49.0	51.0	58.0	49.0	52.0	55.7	47.0	45.0	46.0	

PUBLIC ISSUE 4: How would wildlife habitat be managed and what effects would timber harvest and related activities have on wildlife habitat?

Table S-5 Wildlife Effects

Output or Effect to be Measured	Alternatives										Pref. Alt.
	A	B	C	D	E	F	G	H	I	J	
Sitka Black-tailed Deer											
Percent expected deer harvest, after a severe winter, provided by remaining habitat carrying capacity											
Hunt Area 33: S. Chichagof	290	282	290	288	282	280	280	286	286	286	286
Hunt Area 35: N. Chichagof	120	118	114	114	116	114	114	118	118	118	118
Hunt Area 36: E. Chichagof	252	250	242	230	246	244	246	240	244	244	244
east Kuiu: VCU 416-419	415	409	392	365	402	402	394	388	385	388	388
north Kuiu: VCU 399-400 and 420, 421	645	634	631	635	631	631	636	626	626	626	626
Brown Bear											
Percent of additional streamside/riparian habitat harvested on Chichagof Isl.	0	2	2	6	5	5	5	5	4	4	4
Black Bear											
Percent of additional streamside/riparian habitat harvested on Kuiu Island	0	0	1	1	1	0	0	<1	<1	<1	<1
Marten											
Estimated additional reduction in carrying capacity (# of animals)											
Hunt Area 33: S. Chichagof	0	28	4	18	33	34	35	14	15	16	16
Hunt Area 35: N. Chichagof	0	37	47	28	22	24	24	14	13	13	13
Hunt Area 36: E. Chichagof	0	21	30	40	29	23	14	26	27	27	27
east Kuiu: VCU 416-419	0	15	18	17	15	15	18	26	26	26	26
north Kuiu: VCU 399-400 and 420-421	0	7	4	3	8	8	7	9	9	9	9
Land Otter											
Percent of additional beach fringe habitat harvested	0	1	1	3	1	2	2	2	1	1	1
Bald Eagles											
Number of additional eagle nest tree buffer zones encroached upon	0	0	1	8	2	1	5	5	6	3	3

PUBLIC ISSUE 5: What would be the distribution of harvest, by volume class, for the alternatives considered in the EIS?

Table S-6 Harvest Summary

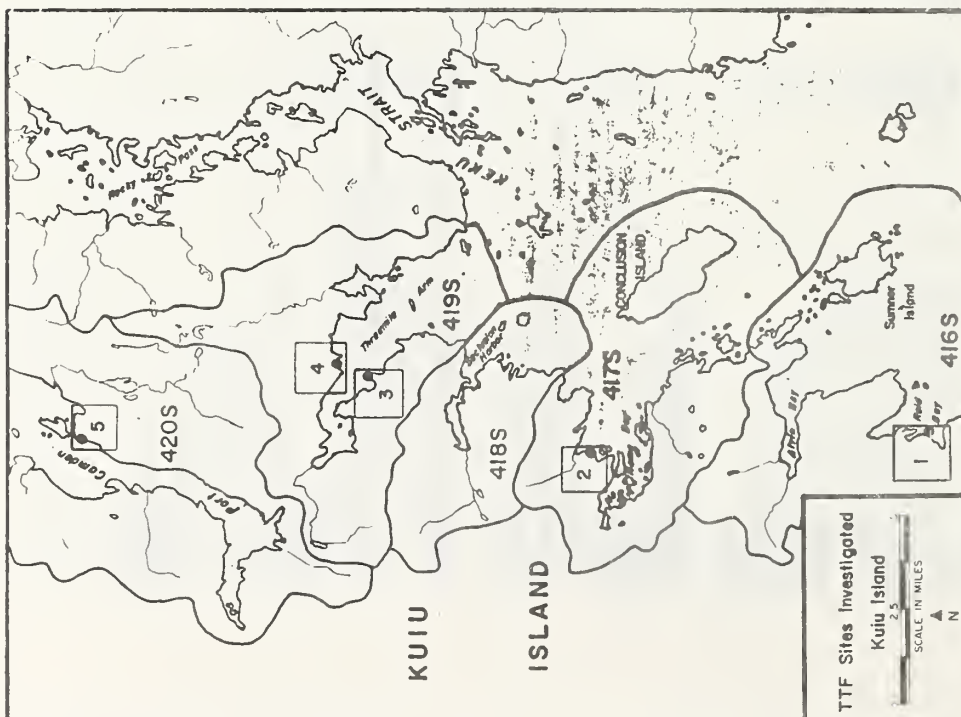
Output or Effect to be Measured	Alternatives										Pref. Alt. J
	A	B	C	D	E	F	G	H	I	J	
Harvest by volume class											
Acres:											
8-20	0	10,390	8,559	7,407	9,537	8,889	8,486	6,396	6,501	6,467	
20-30	0	7,668	7,966	9,616	8,687	8,720	8,145	7,823	7,861	7,779	
30-50	0	4,094	4,574	5,323	3,739	3,849	3,792	4,748	4,721	4,814	
50+	0	262	235	184	325	325	324	739	739	739	
MMBF:											
8-20	0	163	134	116	149	139	132	97	100	98	
20-30	0	201	209	253	228	230	214	204	204	203	
30-50	0	144	160	181	134	137	135	174	172	176	
50+	0	16	13	11	19	19	19	44	44	44	
% total volume harvested											
8-20	0	31	25	21	28	26	26	19	19	19	
20-30	0	38	41	45	43	44	43	39	40	39	
30-50	0	28	31	32	25	26	27	34	33	34	
50+	0	3	3	2	4	4	4	8	8	8	

PUBLIC ISSUE 6: Where would terminal transportation facilities be located and what would be the environmental effects?

Table S-7 Effects on Marine Benthos Habitats

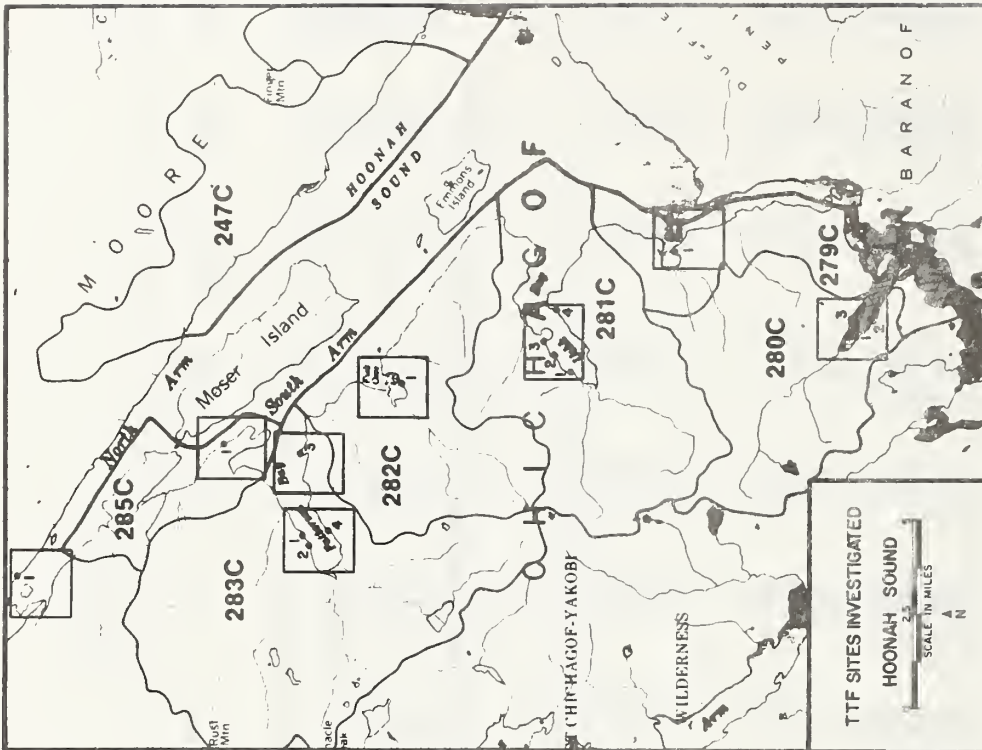
Output or Effect to be Measured	Alternatives										Pref. Alt. J
	A	B	C	D	E	F	G	H	I	J	
Marine Benthos Impacted, acres affected	0	2-5	0	10-25	2-5	2-5	18-45	8-20	8-20	6-15	

Map S-13 TTF Sites Investigated Kuui Island



Reid Bay:	Site 1 - Included in Alternative G
No Name Bay:	Site 2 - Included in Alternative G
Three Mile Arm:	Site 3 - Included in Alternative G
	Site 4 - Included in Alternative G
Port Camden:	Site 5 - Included in Alternative G

Map S-14 TTF Sites Investigated Hoonah Sound



Location	Alternative	Eliminated	Study
Patterson Bay:	Site 1	-	Included in alternatives B and J
	Site 2	-	Included in alternatives D, G, H, and I
	Site 3	-	Eliminated from detailed study
	Site 4	-	Included in Alternative G
Flick Cove:	Site 1	-	Eliminated from detailed study
Hush Bay:	Site 1	-	Eliminated from detailed study
	Site 2	-	Included in alternatives F and G
	Site 3	-	Included in Alternative E
	Site 4	-	Eliminated from detailed study
Deep Bay:	Site 1	-	Eliminated from detailed study
	Site 2	-	Included in alternatives D, G, H, and I
	Site 3	-	Eliminated from detailed study
Poison Cove:	Site 1	-	Included in alternatives D, G, H, I, and J
South Arm			
Hoonah Sound:	Site 1	-	Included in alternatives D and G
North Arm			
Hoonah Sound:	Site 1	-	Included in alternatives D, G, H, I, and J

PUBLIC ISSUE 7: How would resource values in high interest areas be maintained?

Table S-8 High Interest Areas Comparison

Table S-8. High Interest Areas Comparison													
High Interest Area	VCU	New Planned Activity	Alternatives										Pref. Alt. J
			A	B	C	D	E	F	G	H	I		
Pavlof	218	Timber Harvest Vol MMBF	0	3.7	4.9	10.4	10.4	10.4	10.4	10.4	9.8	8.3	8.3
			0	5	44	93	93	93	93	93	77	77	77
			0	0	0.1	0.9	0.9	0.9	0.9	0.9	0.5	0.5	0.5
			0	23.2	0.0	30.5	41.1	0.0	0.0	0.0	0.0	0.0	0.0
Kadashan	235	Timber Harvest Vol MMBF	0	62	0	506	62	0	0	0	0	0	
			0	0.4	0	3.5	1.3	0	0	0	0	0	0
			0	0.0	0.0	28.0	0.0	0.0	28.2	26.2	19.2	19.2	19.2
			0	0	0	60	0	0	60	76	75	75	75
Lisianski River	249 & 262	Class I Stream Adjacent Harvest Miles	0	0	0	8.7	0	0	8.7	9.3	3.4	3.4	
			0	7.4	0.0	7.4	11.6	11.6	11.6	7.1	6.0	6.0	6.0
			0	167	0	114	192	192	190	188	136	136	136
			0	0	0	1.1	1.3	1.3	1.3	0.7	0.8	0.8	0.8
Poison Cove	279	Timber Harvest Vol MMBF	0	22.8	0.0	14.1	22.8	22.8	19.1	9.5	14.0	15.9	
			0	112	0	57	112	112	112	61	79	68	68
			0	0.6	0	3.7	0.6	0.6	0.6	2.3	1.6	0.8	0.8
			0	0	0	0	0	0	0	0	0	0	0
Deep Bay	280	Class I Stream Adjacent Harvest Miles	0	0	0	0	0	0	0	0	0	0	
			0	0	0	0	0	0	0	0	0	0	0
			0	0	0	0	0	0	0	0	0	0	0
			0	0	0	0	0	0	0	0	0	0	0

(continued)

Table S-8 continued

High Interest Area	VCU	New Planned Activity	Alternatives										Pref. Alt. J
			A	B	C	D	E	F	G	H	I	J	
Ushk Bay	281	Timber Harvest Vol MMBF	0	29.0	0.0	0.0	0.0	29.0	27.8	0.0	0.0	0.0	0.0
		Acres DWR Harvested	0	411	0	0	411	411	404	0	0	0	0
		Class I Stream Adjacent Harvest Miles	0	2.7	0	0	2.7	2.7	2.7	0	0	0	0
Fick Cove	282	Timber Harvest Vol MMBF	0	29.1	0.0	0.0	29.1	29.1	23.1	0.0	0.0	0.0	0.0
		Acres DWR Harvested	0	285	0	0	285	285	272	0	0	0	0
		Class I Stream Adjacent Harvest Miles	0	1.9	0	0	1.9	1.9	1.5	0	0	0	0
Patterson Bay	283	Timber Harvest Vol MMBF	0	30.9	0.0	31.7	29.5	44.3	44.3	24.9	26.2	25.4	
		Acres DWR Harvested	0	500	0	241	423	510	490	234	219	219	
		Class I Stream Adjacent Harvest Miles	0	2.4	0	6.2	4.3	7.2	7.2	2.5	2.1	1.5	
South Arm	VCU 285	Timber Harvest Vol MMBF	0	0.0	0.0	5.7	5.5	5.9	5.9	3.0	3.1	3.1	
		Acres DWR Harvested	0	0	0	29	42	14	18	36	36	36	
		Class I Stream Adjacent Harvest Miles	0	0	0	1.5	1.1	1.4	1.4	0.8	0.7	0.7	
Port Camden	420	Timber Harvest Vol MMBF	0	45.9	16.4	5.1	43.1	43.1	43.1	5.1	5.1	5.1	
		Acres DWR Harvested	0	360	315	192	300	300	301	88	88	88	
		Class I Stream Adjacent Harvest Miles	0	0	0	0	0	0	0	0.1	0.1	0.1	

PUBLIC ISSUE 8: What would be the effects on the visual, recreation, and wilderness resources by implementing the 1986-90 operating plan?

Table S-9 Visuals and Recreation

Resource	Output or Effect to be Monitored	Alternative										Pref. Alt.	
		A	B	C	D	E	F	G	H	I	J		
Visual Resource	# VCU's meeting assigned VQOs ^a	52	39	38	35	36	36	34	38	38	38	38	38
	# VCU's not meeting assigned VQOs	0	13	14	17	16	16	18	14	14	14	14	14
Recreation	# VCU's with increased roaded recreation opportunity	0	27	29	32	26	25	27	31	32	33	33	33

^a Meeting assigned VQOs is dependent on road and cutting unit position, size and location, as well as TTF location and design.

The following table shows the effects on opportunities for reallocation of lands adjacent to existing wilderness areas within the 1986-90 study area to wilderness or roadless management.

Table S-10 Wilderness Allocation Opportunity

Wilderness Area	VCUs adjacent wilderness	Alternative										Pref. Alt.	
		A	B	C	D	E	F	G	H	I	J		
West Chichagof -Yakobi	249/262	X	X	X	X	X							
	279	X		X									
	280	X		X									
	281	X		X	X				X	X	X	X	X
	282	X		X	X				X	X	X	X	X
	283	X		X	X								
Tebenkof Bay	285	X	X	X									
	405 ^a	X	X	X	X	X	X	X					
	416 ^b												
	417 ^b												
	419 ^b												
	420 ^b												

^a Alternatives H and J propose road construction through this LUD I area released from wilderness recommendation. The road would preclude the opportunity for reallocation on that portion of VCU 405, within the study area east of the road. The opportunity for reallocation on the west side of the road would still exist.

^b These VCU's contain carryover volume which has been previously cleared for harvest, regardless of new volume scheduled in 1986-90.

ANILCA, SECTION 810 SUBSISTENCE MANAGEMENT AND USE EVALUATION AND FINDING

Section 810 of the Alaska National Interest Lands Conservation Act (ANILCA) requires that Federal agencies evaluate all proposals to "withdraw, reserve, lease or otherwise permit the use, occupancy, or disposition of public land" and determine the "effect of such use, occupancy, or disposition on subsistence uses and needs, the availability of other land for the purpose sought to be achieved, and other alternatives which would reduce or eliminate the use, occupancy, or disposition of public land needed for subsistence purposes."

HOONAH

ADF&G hunt area 35 is identified as the primary subsistence use area for Hoonah residents within the 1986-90 study area. Hunt area 36 is also identified as providing some subsistence use.

The analysis indicates that none of the proposed alternatives would significantly restrict subsistence opportunities for Hoonah residents. An overall rating of the action alternatives is: alternatives H, I, and J would have the least effect on Hoonah subsistence use; alternatives E, F, and G would have more effect; alternatives B and D would have more effect than alternatives E, F, and G; and Alternative C would have the most effect.

ANGOON

ADF&G hunt areas 33 and 36 are part of the identified subsistence use area for Angoon residents. A majority of Angoon subsistence use areas are outside of the 1986-90 study area.

The analysis indicates that none of the proposed alternatives would significantly restrict subsistence opportunities for Angoon residents. An overall rating of the action alternatives is: Alternative B would have the least effect on Angoon subsistence use; alternatives C, E, G, I, and J would have more effect; and alternatives D, F and H would have the most effect.

TENAKEE SPRINGS

The identified subsistence use area for Tenakee Springs residents includes almost all of ADF&G hunt area 36.

The analysis indicates that none of the proposed alternatives would significantly restrict subsistence opportunities for Tenakee Springs residents. An overall rating of the action alternatives is: Alternative B would have the least effect on Tenakee Springs subsistence use; alternatives E and F would have more effect; alternatives C, G, H, I and J would have more effect than alternatives E and F; and Alternative D would have the most effect.

SITKA

Most of ADF&G hunt area 33 is part of the identified subsistence use area for Sitka residents. A large portion of the Sitka subsistence use area is outside of the 1986-90 study area.

The analysis indicates that none of the proposed alternatives would significantly restrict subsistence opportunities for Sitka residents. An overall rating of the action alternatives is: Alternative C would have the least effect on Sitka subsistence use; alternatives B and J would have more effect; alternatives D, E, and I would have more effect than alternatives B and J; and alternatives F, G, and H would have the most effect.

PELICAN

There are only two 1986-90 harvest units proposed in the identified Pelican subsistence use area. These are in alternatives D, G, and H in VCUs 249 and 262. The majority of the identified Pelican subsistence use area is outside of the 1986-90 study area.

The analysis indicates that none of the proposed alternatives would significantly restrict subsistence opportunities for Pelican residents. An overall rating of the action alternatives is: alternatives B, C, E, and F would have the least effect on Pelican subsistence use; alternatives H, I, and J would have more effect ; and alternatives D and G would have the most effect.

KAKE

The documented Kake subsistence areas within the 1986-90 study area include VCUs 399, 400, 420 and 421 (north Kuiu). The Kake subsistence area also includes large areas outside of the 1986-90 study area.

The analysis indicates that none of the proposed 1986-90 alternatives would significantly restrict subsistence opportunities for Kake residents. An overall rating of the action alternatives is: Alternative D would have the least effect on Kake subsistence use; alternatives B, C, and G would have more effect; alternatives E and F would have more effect than alternatives B, C, and G; and alternatives H, I, and J would have the most effect.

POINT BAKER/PORT PROTECTION

The documented Point Baker/Port Protection subsistence areas within the 1986-90 study area include VCUs 416, 417, 418 and 419 (east Kuiu). The Point Baker/Port Protection subsistence area also includes large areas outside of the 1986-90 study area. Conclusion Island was one of the more important use areas identified by some residents of Point Baker/Port Protection. No timber harvest is proposed on Conclusion Island in the final EIS.

The analysis indicates that none of the alternatives would significantly restrict subsistence opportunities for Point Baker/Port Protection residents. An overall rating of the action alternatives is: alternatives B, E, and F would have the least effect on Point Baker/Port Protection subsistence use; Alternative C would have more effect; and alternatives D, G, H, I, and J would have the most effect.

ANILCA, SECTION 810 FINDING

The available subsistence information relevant to the 1986-90 operating period has been analyzed. This includes information on the communities, the resources, and the effects anticipated should any of the ten alternatives considered in detail be implemented. The effects of these proposed actions on subsistence uses and needs; the availability of other land for the purpose of timber harvest for the 1986-90 operating period; and consideration of other alternatives which would reduce or eliminate timber harvest activities from land needed for subsistence have been evaluated. The result of this evaluation is a finding that none of the alternatives considered in detail would have a significant restriction on rural resident's opportunities for subsistence.

LONG-TERM AND CUMULATIVE EFFECTS

Future harvest projections were developed using a multi-entry layout plan (MELP) according to the Alaska Regional Guide. The MELP process identifies commercial forest land and the logging systems and road network needed to manage the timber resources of the VCU.

The cumulative effects for the long-term are not dependent on selection of a particular alternative for the 1986-90 operating period, but rather long-term direction provided for in the Tongass Land Management Plan. Given a finite land base (the Tongass National Forest); a uniform set of resource outputs and resource goals (the Tongass Land Management Plan, and Alaska Regional Guide); and enough time to implement those goals (100 years, approximately a rotation of timber harvest); the end results are relatively fixed. There are a number of variables such as whether, where, and how to harvest timber as is the case for the 1986-90 operating period EIS, but over 100 years, the results of implementing a single Forest Plan are expected to achieve similar conditions.

Timber harvest is scheduled to continue over the 100 year rotation. Timber markets will change to make increased use of second-growth timber. Habitat carrying capacity for old-growth dependent species will decline. Fish habitat and water quality is expected to be maintained through use of streamside and management techniques. Recreation opportunities will shift from primitive to roaded. Visual effects will continually change as harvest occurs with visually sensitive areas managed in extended rotation. Cultural resources will continue to be identified and protected.

